

REMARKS

Reconsideration and allowance of the present patent application based on the following remarks are respectfully requested. By this Response, no claims are added, amended or cancelled.

Accordingly, after entry of this Response, claims 1-12 will remain pending in the present application.

Claim Rejections – 35 USC § 103

Claims 1-5, 11 and 12 were rejected under 35 U.S.C. § 103(a) over Norton et al. (U.S. Patent No. 4,808,115) (hereinafter "Norton") in view of Olsson (U.S. Patent No. 5,949,300) and Fayfield (U.S. Patent No. 5,644,730). Applicants respectfully traverse this rejection for at least the following reasons.

Norton discloses a line replaceable module 12 (LRM) (identified by the Office Action as the "housing" of claim 1) having connectors 16, 50 (identified as the "connectors" of claim 1) that are configured to be coupled to mother board connector assembly 160 which is electrically connected or coupled to mother board 20 (identified as the "circuit card" in claim 1) within a black box (see, FIG. 3 and col. 9, lines 5-6 in Norton). The LRM assembly 12 includes circuit cards 38 and 40.

The Examiner contends that the connectors 16, 50 of Norton are disposed exterior to the housing and pins of connectors extend outwardly from the housing. The connectors are configured to engage at least some sockets of the mother board circuit card 20. The Examiner concedes that Norton does not disclose an isolation circuitry within the housing (LRM 12 in Norton).

With respect to the bus, the Examiner asserts, in page 5 of the Final Office Action, that Norton discloses the device (LRM) coupled to the shipboard electrical system which inherently has the bus via the circuit card.

The Examiner contends that Olsson discloses the isolation circuitry such as isolation transformers 25 and 27 located within housing 41. The Examiner contends that it would have been obvious to one of ordinary skill in the art to add the isolation transformers of Olsson to the housing of Norton since the Olsson transformer is located in a shielded housing. The Examiner contends that in the Norton system modified according to the teachings of Olsson, the bus and the circuit card 20 are

disposed exterior of the housing of the module 12. With respect to a second plurality of connections extending outwardly from the housing and being coupled to the device, the Examiner contends that Olsson discloses connection of a plural channels through their own transformers to the same bus. The Examiner contends that such connection inherently requires the second set of connectors (pins) extending outwardly from the housing.

The Examiner admits that Norton does not disclose the network bus coupler coupling a bus to a device. However, the Examiner further contends that Fayfield discloses a network interface circuitry (interface card 60 in Fig. 3 in Fayfield) which reads on the network bus coupler allowing a device (sensor 20) to communicate with a bus network of a user's choice. The Examiner contends that it would have been obvious to one of ordinary skill in the art to apply the Norton LRM design modified by the teachings of Olsson for coupling through the bus interface network to the bus according to teachings of Fayfield. Applicants respectfully disagree.

As conceded by the Examiner, Norton does not disclose, teach or even suggest a network bus coupler configured to couple a bus to a device. The Examiner further concedes that Norton does not disclose an isolation circuitry within the housing (LRM 12 in Norton).

With respect to the bus, the Examiner asserts, in page 5 of the Final Office Action, that Norton discloses the device (LRM) coupled to the shipboard electrical system which inherently has the bus via the circuit card.

However, "In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). Furthermore, "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted).

In this case, the Examiner has failed to indicate where in the prior art reference the "bus" is disclosed.

Upon further review of the Norton patent, Applicants note that one may construe the optical fiber 134 as being the "bus." However, as clearly shown in Fig. 7 in Norton, the optical fiber 134 is connected to the LRM assembly 12 (see col. 8, lines 45-50 in Norton). The LRM assembly 12 in turn is connected to the mother board connect assembly 160 of the mother board 20 (see Fig. 3 in Norton). Therefore, even if one were to consider that the optical fiber 134 in Norton corresponds to the "bus", the optical fiber 134 ("the bus") is connected directly to the housing (LRM assembly 12) and thus the connectors in the LRM assembly 12 are not connected to the bus (the optical fiber) via the circuit card 20.

Olsson fails to overcome the above deficiencies. Olsson discloses a line coupler having a first coupler half 35 which includes a bus line piece 13 having two bus line wires 15 and 17 and a second coupler half 37 which includes a transformer 23. Both the coupler halves 35 and 37 are accommodated in separate shielded housings. The first coupler half is contained in a first housing 39. The second coupler half 37 is contained in a second housing 41. A connector device 43 is situated between the two coupler halves 35 and 37 (see, col. 2, lines 49-67 and Fig. 1 of Olsson).

The transformer 23 (indicated as corresponding to the isolation circuitry of claim 1) in Olsson is connected to the bus line piece 13 via the connector device 43. The connector device 43 is connected to the bus line 13 via coupling elements (resistors) 29 and 31.

Clearly, the connector device 43 in Olsson is not connected to the bus line 13 via a circuit card, as required in claims 1, 11 and 12.

The Examiner, in the response to the arguments filed January 16, 2009, asserts that Applicants confuse two concepts of coupling: (a) electrical schematic level coupling presented as coupling through resistors and (b) architectural level coupling presented as coupling via a circuit card. The Examiner contends that the same resistors may be positioned in a circuit card, if necessary.

First of all, Applicants are aware of the two possibilities of connecting resistors. Resistors can be connected without using a circuit card or via a circuit card. In the present case, Olsson does not disclose, teach or suggest that the

resistors 29, 31 may be positioned on or connected through a circuit card. Olsson merely discloses that the resistors 29, 31 are provided in the housing 39. In fact, because of the reduced number of electrical connection points in the line coupler device of Olsson, the resistors can be connected directly to the bus wires 15 and to connector device 43 without using a circuit card.

Furthermore, one of ordinary skill in the art would not have been motivated to modify the Norton system with the teachings of Olsson as Olsson does not disclose using a circuit card and providing connections via the circuit card by specifically coupling the "isolation circuitry" (transformer 23) to the bus line 15, 17 via coupling elements (resistors) instead of via a circuit card.

In addition, even if one were to modify Norton according to the teachings of Olsson by adding the isolation transformers 23 of Olsson to the housing (LRM) 12 of Norton to obtain the "network bus coupler", which Applicants do not concede, the isolation transformers 23 of Olsson disposed in the LRM housing 12 of Norton would simply be connected to the mother board 20. In the modified Norton system, the connectors electrically connected to the isolation circuit (transformers 23 of Olsson) are not coupled to a bus via the circuit card (mother board 20). As stated above, even if one were to assume that the optical fiber 134 may be characterized as being "a bus," the optical fiber 134 ("the bus") is connected directly to the housing (LRM assembly 12) and thus the connectors in the LRM assembly 12 are not connected to the bus (the optical fiber) via the circuit card 20.

Furthermore, even if one were to assume that the bus wires 15 and 17 can also be added to the device of Norton, which Applicants do not concede, the isolation circuit (transformers 23) provided in the LRM assembly (housing) 12 would simply be connected to the bus 15, 17 via the resistors 29, 31 which are not provided on a circuit card.

As a result, the Norton system modified by Olsson would fail to disclose, teach or suggest the subject matter recited in independent claims 1, 11 and 12.

Fayfield discloses a binary sensor including an interface card 10. The interface card 10 comprises bus network interface circuitry 12 and a transistor 14 that provides an input signal to the bus network interface circuitry (see, col. 3, lines 40-50 in Fayfield). In another embodiment the binary sensor does not include an adaptive interface card. In which case a junction box 108 including the network

interface circuitry is used to allow binary sensors 100a to communicate on the network bus 110 with programmable logic controller PLC 102 (see, col. 5, lines 30-58 in Fayfield).

Contrary to Examiner's contention, Fayfield does not disclose, teach or suggest "a network bus coupler configured to couple a bus to a device," as recited in claims 1, 11 and 12. In Fayfield, the network interface circuitry 108 is connected directly to the network bus 110. The network interface circuitry 108 is not connected to the bus 110 via a circuit card.

Therefore, there is no suggestion, motivation or reason to dispose the network interface circuitry 108 of Olsson in the LRM housing 12 of Norton as Fayfield does not use a circuit card to connect the bus 110 to the network interface circuitry 108.

In addition, even if one were to combine Fayfield, Olsson and Norton in the manner suggested by the Examiner, which Applicants do not concede, the network interface circuitry 108 disposed in the LRM housing 12 of Norton would still fail to be connected to a bus via circuit card as the connectors in the LRM assembly 12 are not connected to the bus (the optical fiber) via the circuit card 20.

Consequently, for the above additional reasons, none of Norton, Olsson or Fayfield, alone or in combination, disclose, teach or even suggest the subject matter recited in claims 1, 11 and 12.

Therefore, Applicants respectfully submit that claims 1, 11 and 12, and claims 2-5 which depend from claim 1, are patentable. Thus, it is respectfully requested that the rejection of claims 1-5, 11 and 12 under 35 U.S.C. § 103(a) over the combination of Norton, Olsson and Fayfield be withdrawn.

Claim 12 was rejected under 35 U.S.C. § 103(a) based on Brodsky (U.S. Patent No. 4,833,600) in view of Olsson. Applicants respectfully traverse this rejection for at least the following reasons.

The cited portions of Brodsky disclose an integrated circuit U3 interfaced with a common network line 20 through an INCOM coupling circuit 22 (see, FIGs. 1 and 2, and col. 5, lines 43-46 in Brodsky) which are located on a CONI card. The INCOM coupling circuit 22 includes a coupling transformer 90 (see, col. 17, lines 1-6 in Brodsky).

The Examiner contends that the INCOM circuit 22 in Brodsky represents a network bus coupler configured to couple a communication bus 20 to a device (INCOM U3) which is connected to the CONI card.

As conceded in the Office Action, Brodsky does not disclose a transformer housing.

Furthermore, Brodsky does not disclose, teach or suggest, *inter alia*, "connectors disposed exterior of the housing and extending outwardly from the housing, the connectors being electrically coupled to the electrical isolation circuitry and configured to engage at least some sockets of the circuit card, ...wherein a first plurality of said connectors extending outwardly from the housing is configured to be coupled to the bus via the circuit card and a second plurality of said connectors extending outwardly from the housing is configured to be coupled to the device via the circuit card."

The Examiner contends that the extensions of some connectors of the transformer inherently engage at least some sockets on the circuit card (the CONI card). Applicants respectfully disagree.

In Brodsky, the transformer 90 (isolation circuit) in the INCOM coupling circuit 22 (network bus coupler) is connected to connection points within the INCOM coupling circuit 22. Contrary to Examiner's contention "connectors" or terminals of the transformer 90 are not connected to sockets of the circuit card (CONI card). As shown in FIG. 2 in Brodsky, the CONI card does not have sockets for receiving the terminals or connectors of transformer 90. Sockets are different from electrical points or terminal.

Furthermore, the Examiner reliance on inherency is improper. To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Clearly, one ordinary skill in the art while reading the Brodsky patent would not suggest that the transformer 90 is connected to the CONI card via sockets.

Furthermore, Brodsky does not disclose connectors that are extending outwardly from the housing.

Olsson fails to overcome the deficiencies noted above in Brodsky. As noted above with respect to claims 1, 11 and 12, Olsson does not disclose, teach or

suggest the features recited in claim 12. The connector device 43 in Olsson is not connected to the bus line 13 via a circuit card, as required in claim 12.

Furthermore, there is no suggestion, motivation or reason to provide a housing to the transformer 90 in the INCOM circuit 22 of Brodsky while providing that the connectors of the network bus coupler (INCOM circuit 22) extend outwardly from the housing.

Even if one were to provide a housing to the transformer 90 in the INCOM circuit 22, which Applicants do not concede, the resulting "network bus coupler" would still fail to have connectors extending outwardly from the housing much less that some of the connectors the transformer 90 can be connected to sockets of the circuit card (CONI card) as neither Brodsky nor Olsson disclose, teach or even suggest providing sockets in the CONI card.

Consequently, neither Brodsky nor Olsson, alone or in combination, disclose, teach or suggest the subject matter recited in claim 12.

Therefore, Applicants respectfully submit that claim 12 is patentable and respectfully request that the rejection of claim 12 under 35 U.S.C. § 103(a) over the combination of Brodsky and Olsson be withdrawn.

Claims 7, 8 and 10 were rejected under 35 U.S.C. § 103(a) based on Norton in view of Olsson. Applicants respectfully traverse this rejection for at least the following reasons.

Claim 7 recites a system for coupling a device to a bus, said system comprising, *inter alia*, "a modular network bus coupler mountable to said circuit card and configured to couple the bus to the device connected to the circuit card, said bus coupler comprising: a housing; electrical isolation circuitry disposed within the housing; and, a plurality of pins disposed exterior of the housing and extending outwardly from the housing, the plurality of pins being engageable with at least some of said sockets of said circuit card, at least some of said pins being electrically coupled to said electrical isolation circuitry, wherein the bus and the circuit card are disposed exterior of the housing, and wherein a first plurality of said pins extending outwardly from the housing is configured to be coupled to the bus via the circuit card and a second plurality of said pins extending outwardly from the housing is configured to be coupled to the device via the circuit card."

As noted previously, the cited portions of Norton and Olsson fail to disclose, teach or suggest these features.

Therefore, Applicants respectfully submit that claim 7, and claims 8 and 10 which depend therefrom, are patentable. Thus, it is respectfully requested that the rejection of claims 7, 8 and 10 under 35 U.S.C. § 103(a) over the combination of Norton and Olsson be withdrawn.

Claims 6 and 9 were rejected under 35 U.S.C. § 103(a) based on Norton in view of Olsson, Fayfield and Shaffer (U.S. Patent No. 5,841,778). Applicants respectfully traverse this rejection for at least the following reasons.

Claim 6 depends from claim 1. Claim 9 depends from claim 7. Therefore, for at least the reasons provided above with respect to claims 1 and 7, Applicants respectfully submit that claims 6 and 9 are patentable over the combination of Norton, Olsson and Fayfield. Furthermore, claims 6 and 9 are further patentable for the subject matter recited therein.

Shaffer fails to overcome the deficiencies noted above in the combination of Norton, Olsson and Fayfield. Shaffer discloses a system for controlling traffic on a contention-based local area network. For example, Shaffer does not disclose, teach or suggest a plurality of pins disposed exterior of the housing and extending outwardly from the housing, the plurality of pins being engageable with at least some of said sockets of said circuit card, at least some of said pins being electrically coupled to said electrical isolation circuitry, wherein the bus and the circuit card are disposed exterior of the housing, and wherein a first plurality of said pins extending outwardly from the housing is configured to be coupled to the bus via the circuit card and a second plurality of said pins extending outwardly from the housing is configured to be coupled to the device via the circuit card, as recited in claims 6 and 9.

The Examiner contends that the terminators 110 and 160 in Shaffer are inherently disposed in the housing and electrically coupled to a connector. Applicants respectfully disagree. The terminators 110 and 160 in Shaffer are used to terminate the network (LAN) bus 170. The terminator are used in a network bus to dissipate or absorb the energy that remains in the signal to prevent the signal from being reflected or propagated back onto the transmission line in the opposite

direction which would cause interference with and degradation of the signals on the transmission line (see Network Topology extracted from Wikipedia.org, a copy of which is attached herewith as exhibit A). Passive terminators are simple resistors while active terminators include voltage regulators. Therefore, the terminators of Shaffer are not disposed in a housing. The terminators of Shaffer are connected to the end of the bus line. There is nothing in Shaffer that suggests that the terminators can be placed in a housing and connected to connectors.

Consequently, for at least these reasons, none of Norton, Olsson, Fayfield or Shaffer, alone or in combination disclose, teach or suggest the subject matter recited in claims 6 and 9.

Therefore, Applicants respectfully submit that claims 6 and 9 are patentable and respectfully request that the rejection of claims 6 and 9 under 35 U.S.C. § 103(a) over the combination of Norton, Olsson, Fayfield and Shaffer be withdrawn.

CONCLUSION

Having addressed each of the foregoing rejections, it is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, the application is in condition for allowance. Notice to that effect is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

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Respectfully submitted,

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Encl: Exhibit A: " Network Topology" – Wikipedia.org